

AMENDMENTS TO THE CLAIMS

1. (Currently amended) Communication apparatus for integrating a packet network with a circuit-switched telephone network, the apparatus comprising:

a packet network interface, for coupling to a packet switch in a the packet network;
a telephone network interface, for coupling to a node in a the circuit-switched telephone network; and
~~a convergence processor~~ fixed-mobile convergence gateway (FMC), coupled between the packet network and telephone network interfaces and adapted operative to:

emulate a mobile switching center (MSC) and a visitor location register (VLR) in the circuit-switched telephone network so as to assign telephone numbers in the circuit-switched telephone network to user terminals in the packet network;
and

register subscribers in the packet network for telephone service in the circuit-switched telephone network by:

sending an Update Location message to a Home Location Registry (HLR) in the circuit-switched telephone network;

receiving an Insert Subscriber Data (ISD) message from the HLR;

sending an ISD result message to the HLR; and

receiving an Update Location Result message from the HLR; and

to connect telephone calls, using the assigned telephone numbers, between telephones in the circuit-switched network and the user terminals.

2. (Original) The apparatus according to claim 1, wherein the packet network comprises an Internet Protocol (IP) network, and wherein the telephone network comprises a cellular telephone network.

3. (Currently amended) The apparatus according to claim 2, wherein the ~~convergence processor is adapted~~ FMC is arranged to assign different, first and second telephone numbers to a given user terminal in the packet network, wherein the first telephone number belongs to the cellular telephone network, and the second telephone number belongs to a public switched telephone network (PSTN).
4. (Currently amended) The apparatus according to claim 1, wherein the ~~convergence processor is adapted~~ FMC is arranged to assign to the user terminals telephone numbers having a first country code, while the user terminals are located in a country having a different, second country code.
5. (Original) The apparatus according to claim 1, wherein the packet network interface comprises a session border controller, which is operative to perform Network Address Translation (NAT).
6. (Original) The apparatus according to claim 1, wherein the telephone network interface comprises a media gateway.
7. (Currently amended) The apparatus according to claim 1, and comprising a softswitch, which is coupled between the packet network and telephone network interfaces and the ~~convergence processor~~ FMC so as to convey instructions from the convergence processor to the packet network and telephone network interfaces regarding handling of the telephone calls to and from the user terminals.
8. (Currently amended) The apparatus according to claim 7, wherein the softswitch is ~~adapted~~ arranged to communicate with the packet network and telephone network interfaces by transmitting and receiving at least one of Session Initiation Protocol (SIP) or and SIP for telephones (SIP-T) packets.
9. (Currently amended) The apparatus according to claim 1, wherein the ~~convergence processor is adapted~~ FMC is arranged to receive registration requests from the user terminals and, in response to the registration requests, to register the user terminals in a ~~home location register (HLR) in the telephone network~~ the HLR.

10. (Currently amended) The apparatus according to claim 9, wherein the ~~convergence processor is adapted~~ FMC is arranged to communicate with the HLR in order to determine respective service profiles applicable to the user terminals.

11. (Currently amended) The apparatus according to claim 10, wherein the ~~convergence processor is adapted~~ FMC is arranged, responsively to the service profile, to invoke an Intelligent Network (IN) service in the telephone network that is to be applied to a call.

12. (Currently amended) The apparatus according to claim 10, wherein the ~~convergence processor is adapted~~ FMC is arranged to determine the respective service profiles initially upon registration of the user terminals and to update one or more of the service profiles thereafter while the user terminals are in operation.

13. (Currently amended) The apparatus according to claim 10, wherein the ~~convergence processor is adapted~~ FMC is arranged to receive from the packet network interface an indication of a request from one of the user terminals to set up a call, and responsively to the indication, to cause the telephone network interface to route the call to a telephone number in the telephone network in accordance with an applicable service profile.

14. (Currently amended) The apparatus according to claim 9, wherein the ~~convergence processor is adapted~~ FMC is arranged to receive a request from the HLR for routing information with respect to a call placed from the telephone network to a telephone number that is assigned to a user terminal having a network address in the packet network and, responsively to the request, to cause the packet network interface to route the call to the network address of the user terminal.

15. (Currently amended) The apparatus according to claim 9, wherein the ~~convergence processor is adapted~~ FMC is arranged to communicate with the HLR using a Mobile Application Protocol (MAP).

16. (Currently amended) A method for ~~communication~~ integrating a packet network with a circuit-switched telephone network, the method comprising:

coupling a ~~convergence processor~~ fixed-mobile convergence gateway (FMC) between a packet switch in a packet network and a node in a circuit-switched telephone network;

assigning telephone numbers in the circuit-switched telephone network to user terminals in the packet network; and

registering subscribers in the packet network for telephone service in the circuit-switched telephone network by:

sending an Update Location message to a Home Location Registry (HLR) in the circuit-switched telephone network;

receiving an Insert Subscriber Data (ISD) message from the HLR;

sending an ISD result message to the HLR; and

receiving an Update Location Result message from the HLR; and

connecting telephone calls, using the assigned telephone numbers, between telephones in the circuit-switched network and the user terminals, by operating the ~~convergence processor~~ FMC so as to emulate a mobile switching center (MSC) and a visitor location register (VLR) of the assigned numbers in the circuit-switched telephone network.

17. (Original) The method according to claim 16, wherein the packet network comprises an Internet Protocol (IP) network, and wherein the telephone network comprises a cellular telephone network.

18. (Original) The method according to claim 17, assigning the telephone numbers comprises assigning different, first and second telephone numbers to a given user terminal in the packet network, wherein the first telephone number belongs to the cellular telephone network, and the second telephone number belongs to a public switched telephone network (PSTN).

19. (Original) The method according to claim 16, wherein assigning the telephone numbers comprises assigning to the user terminals telephone numbers having a first country code, while the user terminals are located in a country having a different, second country code.

20. (Original) The method according to claim 16, wherein connecting the telephone calls comprises performing Network Address Translation (NAT) so as to connect the calls to the user terminals via the packet network.

21. (Original) The method according to claim 16, wherein connecting the telephone calls comprises converting media and signaling messages between protocols used respectively in the packet and telephone networks.

22. (Currently amended) The method according to claim 16, wherein connecting the telephone calls comprises receiving registration requests from the user terminals and, in response to the registration requests, registering the user terminals in ~~a home location register (HLR) in the telephone network~~ the HLR.

23. (Original) The method according to claim 22, wherein registering the user terminals comprises communicating with the HLR in order to determine respective service profiles applicable to the user terminals.

24. (Original) The method according to claim 23, wherein connecting the telephone calls comprises invoking, responsively to the service profile, an Intelligent Network (IN) service in the telephone network that is to be applied to a call.

25. (Original) The method according to claim 23, wherein communicating with the HLR comprises determining the respective service profiles initially upon registration, and comprising updating one or more of the service profiles thereafter while the user terminals are in operation.

26. (Currently amended) The ~~apparatus~~ method according to claim 23, wherein connecting the telephone calls comprises receiving from the packet network an indication of a request from one of the user terminals to set up a call, and responsively to the indication, routing the call to a telephone number in the telephone network in accordance with an applicable service profile.

27. (Original) The method according to claim 22, wherein connecting the telephone calls comprises receiving a request from the HLR for routing information with respect to a call placed from the telephone network to a telephone number that is assigned to a user terminal having a network address in the packet network and, responsively to the request, routing the call to the network address of the user terminal.

28. (Original) The method according to claim 22, wherein registering the user terminals comprises communicating with the HLR using a Mobile Application Protocol (MAP).